

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte EIJI FUKASAWA, MIZUHO SHIRAKURA,
OSAMU JINZA and MAKOTO LINO

Appeal 2006-2439
Application 09/986,446
Technology Center 1700

Decided: November 30, 2006

Before GARRIS, WARREN, and JEFFREY T. SMITH, *Administrative
Patent Judges*.

JEFFREY T. SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims 12, 14-18, and 21-24, the only claims pending in this application. We have jurisdiction under 35 U.S.C. § 134.¹

We AFFIRM

¹ An Oral Hearing took place on October 17, 2006.

BACKGROUND

Appellants' invention relates to a device for filtering and adding a grain refining material to metal melts. Claims 12 and 24, as presented in the Brief, appear below:

12. A device for filtering and adding grain-refining materials to a metal melt, said device having a flow direction for said melt, said device comprising:

- a first filter comprising a porous filter medium;
 - a grain refining material feed, said disposed downstream from said first filter in said flow direction; and
 - a second filter, said second filter disposed downstream from said feed in said flow direction,
- wherein said second filter comprises a porous filter medium in the form of a deep-bed filter,
- wherein said first filter is configured to operate based on cake filtration.

24: A method for filtering and adding a grain refining material to a metal melt, said method comprising:

- filtering said melt using a porous medium as a first filter;
 - adding said grain-refining material to said melt after said filtering said melt using a porous medium; and
 - filtering said melt using a second filter after said adding,
- wherein said second filter comprises a porous filter medium in the form of a deep-bed filter,
- wherein said first filter is configured to operate based on cake filtration.

The Examiner relies on the following references in rejecting the appealed subject matter:

Dore	US 4,113,241	Sep, 12, 1978
Hunt	US 4,790,870	Dec. 13, 1988
Gesing	US 4,790,973	Dec. 13, 1988
Walker	US 4,834,876	May 30, 1989
Takayuki (as translated)	JP 07-207357	Aug. 08, 1995

The Examiner has entered the following grounds of rejection:

Claims 12 and 21-24 stand rejected under 35 U.S.C. § 103(a) as obvious over Takayuki and Gesing;

Claims 14-17 and 20-23 stand rejected under 35 U.S.C. § 103(a) as obvious over Takayuki, Gesing and Dove;

Claims 18, 22 and 23 stand rejected under 35 U.S.C. § 103(a) as obvious over Takayuki, Gesing and Walker.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the Appellants regarding the above noted rejections, we make reference to the Answer (mailed December 2, 2005) for the Examiner's reasoning in support of the rejections, and to the Brief (filed October 25, 2005) for Appellants' arguments of thereagainst.

OPINION

Claims 12 and 21-24 stand rejected under 35 U.S.C. § 103(a) as obvious over Takayuki and Gesing. We select claims 12 and 24, as representative of the rejected claims.

The Examiner asserts that Takayuki discloses a device and method for filtering and adding a grain refining material to a metal melt comprising a first filter, a grain refining material feed down straining from said first filter and a second filter down stream from the first filter. The Examiner recognizes that Takayuki does not teach the second filter is a deep-bed filter. The Examiner asserts Gesing teaches a device and a method for filtering molten metal that comprises a deep-bed filter as the second filter in the process of filtering the molten metal. The Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of the

invention to perform the method of filtering molten metal using the device of Takayuki that comprises a deep-bed filter in the second filtering step (Answer 3).

Appellants argue that it would not have been obvious to a person of ordinary skill in the art to modify the arrangement of Takayuki, because the arrangement of Gesing is completely different from that of Takayuki (Br. 10). Appellants assert "it is only the inventors herein who discovered the special benefits that arise from the particular kinds of filters and their arrangement relative to the grain refining material feed that are set forth in claims 12 and 24" (Br. 10).

Appellants' arguments are not persuasive. The present record indicates that persons of ordinary skill in the art recognized that metal melts could be filtered during casting processes (Specification 1). The present record also indicates that various types of filters were known for filtering metal melts including loose bed filters (Specification 2 and 3). The Gesing reference has been relied upon by the Examiner as further evidence of what is recognized by persons of ordinary skill in the art. In particular, Gesing discloses that metal melts could be processed through multiple filters including a loose (deep) bed filter which are suitable for removing inclusions from the molten metal (Col. 4, ll. 9-17). Takayuki describes a device and method for removing inclusions from molten metal, which employs multiple filters. As such, persons of ordinary skill in the art would have recognized that molten metal melts could have been filtered in a device that comprised multiple filters including a second loose-bed filter. It is recognized that Takayuki discloses a preference for a "disposable" second filter. However, a person of ordinary skill in the art would have recognized that the function of

the second stage of filtering was to remove inclusions from the metal melt. The cited prior art establishes that it was known that disposable cake filters, and more complex filtering mechanism (deep-bed filters) were both suitable for removing inclusions from metal melts. Persons of ordinary skill in the art would have recognized the advantages and disadvantages of the various filtering mechanisms such as the length of use of the various devices and expense thereof. Consequently, a person of ordinary skill in the art would have been motivated to perform the filtering process of Takayuki wherein the second filtering stage employs a deep-bed filter, because it was known that deep bed filters are suitable for removing inclusions from metal melts. Knowledge generally available to one skilled in the art can provide the motivation to combine the relevant teachings. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 n.24, 227 USPQ 657, 667 n.24 (Fed. Cir. 1985). The motivation to combine the relevant teachings of references may come from knowledge of those skilled in the art that certain references, or disclosures in the references, are known to be of special interest or importance in the particular field. *Pro Mold and Tool Co. v. Great Lakes Plastics Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996).

Regarding, the rejection of claims 14-17 and 20-23 under 35 U.S.C. § 103(a) as obvious over Takayuki, Gesing and Dove; and claims 18, 22, and 23 under 35 U.S.C. § 103(a) as obvious over J Takayuki, Gesing and Walker, Appellants have not specifically challenged the Examiner's motivation for combining the teachings of Dove and Walker with Takayuki and Gesing. Rather, Appellants rely on the arguments presented in the discussion of claim 12 (Br. 12-13). The Examiner has presented factual

determinations regarding the suitability of combining the teachings of Dove and Walker with Takayuki and Gesing (See Answer 4-5). We uphold these rejections for the reasons presented above regarding claim 12, and the reasons presented by the Examiner.

CONCLUSION.

Based on our consideration of the totality of the record before us, having evaluated the prima facie case of obviousness in view of Appellants' arguments, we determine that for each ground of rejection the Examiner has established a prima facie case of obviousness that has not been adequately rebutted by Appellants. Accordingly, the rejections of claims 12, 14-18, and 21-24 have been affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

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